AMENDMENTS TO THE CLAIMS

Claim 1. (previously presented) An NMR system comprising, in combination:

an NMR probe comprising multiple NMR detection sites, wherein each NMR detection site comprises a sample holding void, and an associated NMR microcoil, and wherein ~~the~~ each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated; and

a controllable fluid router operative to direct fluid sample to the multiple NMR detection sites.

Claim 2. (original) The NMR system of claim 1 wherein the multiple NMR sites are integrated in a probe module.

Claim 3. (original) The NMR system of claim 2 wherein the sample holding void of each of the NMR detection sites is in a capillary-scale fluid channel in the module.

Claim 4. (original) The NMR system of claim 2 wherein the sample holding void of each of the NMR detection sites is in a micro-scale fluid channel in the module.

Claim 5. (original) The NMR system of claim 1 wherein the controllable fluid router is operative in response to an electrical input signal.

Claim 6. (original) The NMR system of claim 1 wherein the controllable fluid router is operative to direct fluid sample to any selected ones of the NMR detection sites.

Claim 7. (original) The NMR system of claim 1 wherein the controllable fluid router is operative to direct fluid sample to any selected ones of the NMR detection sites corresponding to the input signal.

Claim 8. (original) The NMR system of claim 7 further comprising an operative component in communication with the router and operative to generate the input signal to the router.

Claim 9. (original) The NMR system of claim 8 wherein the multiple NMR sites and the operative component are integrated in a probe module.

Claim 10. (original) The NMR system of claim 7 further comprising a controller unit in communication with the router and operative to generate the input signal to the router.

Claim 11. (original) The NMR system of claim 10 wherein the multiple NMR sites and the controller unit are integrated in a probe module.

Claim 12. (original) The NMR system of claim 5 further comprising a controller unit operative to receive information from any of the multiple NMR detection sites and to generate the input signal to the router based at least in part on said information.

Claim 13. (original) The NMR system of claim 5 further comprising an operative component and a controller unit operative to receive information from the operative component and to generate the input signal to the router based at least in part on said information.

Claim 14. (original) The NMR system of claim 13 wherein the operative component, the controller unit and the multiple NMR sites are integrated in a probe module.

Claim 15. (original) The NMR system of claim 1 wherein one or more of the multiple NMR detection sites are in communication with a data processing unit.

Claim 16. (original) The NMR system of claim 15 wherein the data processing unit is integrated in a probe module.

Claim 17. (original) The NMR probe module of claim 15 wherein the data processing unit provides an input signal to the controllable router.

Claim 18. (previously presented) An NMR probe module comprising:

multiple NMR detection sites each comprising a sample holding void and an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated; and

a controllable fluid router operative to direct fluid sample to the multiple NMR detection sites.

Claim 19. (previously presented) An NMR smart probe comprising:

multiple NMR detection sites each comprising a sample holding void and an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated;

a controllable fluid router operative in response to an electrical input signal to direct fluid sample to the multiple NMR detection sites; and

a controller unit in communication with the router and operative to generate the input signal to the router.

Claim 20. (previously presented) A NMR probe module comprising:

at least one fluid inlet port, operative to receive a fluid sample,

a fluid pathway comprising multiple channels in fluid communication with the at least one fluid inlet port, for the transport of fluid sample to be tested;

multiple NMR detection sites, each in fluid communication with at least one of the multiple channels, each comprising:

a sample holding void, and

an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated; and

a controllable fluid router operative to direct fluid sample in the module to at least a selected one of the multiple channels.

Claim 21. (original) The NMR probe module of claim 20 wherein the controllable fluid router is operative in response to an electrical input signal to direct fluid sample in the module to at least a selected one of the multiple channels corresponding to the input signal.

Claim 22. (original) The NMR probe module of claim 21 wherein the sample holding void is in a capillary-scale fluid channel.

Claim 23. (original) The NMR probe module of claim 21 wherein the sample holding void is in a micro-scale fluid channel.

Claim 24. (original) The NMR probe module of claim 20 further comprising an outlet port in fluid communication with the fluid pathway.

Claim 25. (original) The NMR probe module of claim 20 wherein the multiple NMR detection sites each is optimized or different nuclear species.

Claim 26. (previously presented) The NMR probe module of claim 20 wherein at least one of the multiple NMR detection sites is optimized for 1-dimensional NMR study.

Claim 27. (previously presented) The NMR probe module of claim 20 wherein at least one of the multiple NMR detection sites is optimized for 2-dimensional NMR study.

Claim 28. (original) The NMR probe module of claim 20 wherein the multiple NMR detection sites are optimized for different sample sizes.

Claim 29. (original) The NMR probe module of claim 20 wherein the multiple NMR detection sites are optimized using different materials.

Claim 30. (original) The NMR probe module of claim 20 wherein the multiple NMR detection sites are made of fused silica and PEEK.

Claim 31. (previously presented) The NMR probe module of claim 20 wherein the multiple NMR detection sites are made of fused silica and polytetrafluoroethylene.

Claim 32. (original) The NMR probe module of claim 1 wherein each of the multiple NMR detection sites are optimized differently.

Claim 33. (original) The NMR probe module of claim 1 wherein the microcoil is helical, solenoidal or spiral.

Claim 34. (original) The NMR probe module of claim 1 wherein the microcoil is planar.

Claim 35. (original) The NMR probe module of claim 20 wherein the module further comprises an analyte extraction chamber in fluid communication with at least one of the NMR detection sites.

Claim 36. (original) The NMR probe module of claim 35 wherein the analyte extraction chamber is operative to perform liquid chromatography.

Claim 37. (original) The NMR probe module of claim 35 wherein the analyte extraction chamber is operative to perform capillary electrophoresis.

Claim 38. (previously presented) A NMR probe module comprising:

at least one fluid inlet port, operative to receive a fluid sample,

a fluid pathway comprising multiple channels in fluid communication with the at least one fluid inlet port, for the transport of fluid sample to be tested;

multiple NMR detection sites, each in fluid communication with at least one of the multiple channels, each comprising:

a sample holding void, and

an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated;

a controllable fluid router operative to direct fluid sample in the module to at least a selected one of the multiple channels; and

an analyte extraction chamber in fluid communication with at least one of the NMR detection sites, wherein the analyte extraction chamber is operative to perform dynamic field gradient focusing.

Claim 39. (previously presented) A NMR probe module comprising:

at least one fluid inlet port, operative to receive a fluid sample,

a fluid pathway comprising multiple channels in fluid communication with the at least one fluid inlet port, for the transport of fluid sample to be tested;

multiple NMR detection sites, each in fluid communication with at least one of the multiple channels, each comprising:

a sample holding void, and

an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the sample holding void with which the NMR microcoil is associated;

a controllable fluid router operative to direct fluid sample in the module to at least a selected one of the multiple channels; and

an analyte extraction chamber in fluid communication with at least one of the NMR detection sites, wherein the analyte extraction chamber is operative to perform electric field gradient focusing.

Claim 40. (original) The NMR probe module of claim 20 further comprising at least one operative component in communication with the fluid pathway.

Claim 41. (original) The NMR probe module of claim 40 wherein the operative component is a heating device.

Claim 42. (original) The NMR probe module of claim 40 wherein the operative component is a sonication device.

Claim 43. (original) The NMR probe module of claim 40 wherein the operative component is reaction site.

Claim 44. (original) The NMR probe module of claim 40 wherein the operative component is in electrical communication with the controllable gate.

Claim 45. (original) The NMR probe module of claim 40 wherein the operative component is in communication with the one or more of the NMR detector sites.

Claim 46. (original) The NMR probe module of claim 40 wherein the operative component is an IR detector.

Claim 47. (original) The NMR probe module of claim 40 wherein the one operative component is a photodiode array.

Claim 48. (original) The NMR probe module of claim 40 wherein the operative component is a UV visibility array.

Claim 49. (original) The NMR probe module of claim 40 wherein the operative component is a micro-controller.

Claim 50. (original) The NMR probe module of claim 40 wherein the operative component is a memory module.

Claim 51. (original) The NMR probe module of claim 40 wherein the operative component is in communication with a data processing unit.

Claim 52. (original) The NMR probe module of claim 40 wherein the operative component is in communication with a controller unit.

Claim 53. (original) The NMR probe module of claim 40 wherein the operative component is a pump.

Claim 54. (previously presented) An NMR probe module comprising:

at least one fluid inlet port, operative to receive a fluid sample;

a fluid pathway comprising multiple fluidic channels in fluid communication with the at least one fluid inlet port, for the transport of fluid sample to be tested; and

multiple NMR detection cells, each in fluid communication with a corresponding one of the multiple channels and comprising:

an enlarged void for holding a fluid sample, and

an associated NMR microcoil, wherein each NMR microcoil is operative to detect one or more analytes in the enlarged void with which the NMR microcoil is associated.

Claim 55. (original) The NMR probe module of claim 54 further comprising a controllable fluid router operative to direct fluid sample in the module to selected ones of the multiple channels.

Claim 56. (previously presented) An NMR system comprising:

an NMR probe comprising two or more NMR detection sites, the NMR probe comprising

at least a first NMR detection site comprising

a first sample holding void in a first capillary and a first NMR microcoil associated with the first sample holding void, and

at least a second NMR detection site independent of the first NMR detection site, the second NMR detection site comprising

a second sample holding void in a second capillary and a second NMR microcoil associated with the second sample holding void; and

a controllable fluid router operative to direct fluid sample to the first and/or second NMR detection sites.

Claim 57. (previously presented) The NMR system of claim 56 in which NMR detection is simultaneous in the first sample holding void and the second sample holding void.

Claim 58. (previously presented) The NMR system of claim 56 in which the first and second capillaries are parallel to each other within the NMR probe.

Claim 59. (previously presented) The NMR system of claim 56 in which the first NMR microcoil is a single microcoil operative to transmit and to receive.

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